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Outlook '88: A Bright Horizon... Clouds?

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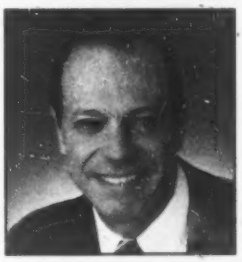

Editor's Viewpoint

Indications are that the upcoming year will be, on balance, a pretty good one—nothing spectacular, but at least a steady continued recovery from 1986 when the entire industry was jolted by plummeting oil prices. Gasoline consumption, for instance, should remain relatively stable (See story on page 32). Not great news, but not bad either, except that flat demand might put downward pressure on margins. Pump prices are expected to rise slightly, but stay below the 1985 level of $1.20 a gal. And some industry observers say crude prices will hold in the $18 a bbl. area, especially since Saudi Arabia's oil minister told the API meeting in November that his country would support that price.

Events in the Persian Gulf, of course, could send the forecasters back to the drawing boards. And there are signs of impending trouble here at home as well. One of the most significant indicators of what lies ahead is that oil company expenditures for marketing this year are expected to be a record $4.9-billion. Combined with an estimated $4.4-billion last year and a planned $4.8-billion next year, refiners will have spent $14.2-billion in a three-year period.

For some jobbers, this bodes well. But there is also an ominous underlying message in those figures because they indicate increasingly tough competition on the street and an even greater emphasis by refiners on boosting gallonage and improving brand image. That will hurt jobbers who are unable or unwilling to commit the large financial investment needed to upgrade their stations. Some may be forced out of business and others may have to "de-brand," which could make it difficult for them to get supply. In addition, the stiff competition may compel the majors, who have already laid claim to most metropolitan areas as their private preserve, to spread out even further. Some marketers report that this is, in fact, beginning.

Meanwhile, jobbers and suppliers alike are keeping a watchful eye on regulatory developments, especially those relating to underground tanks, hazardous substances and vapor recovery. They're also monitoring action on Capitol Hill. And with good reason. Under normal circumstances, legislators are an ever present threat. This year, however, they could be even more dangerous because it's an election year (what some people appropriately call the "silly season"). So, don't be too surprised if you see such things as the import tax or a hike in federal gasoline taxes given more attention, especially since legislators will be looking for "painless" taxes to plug into the recently developed deficit reduction plan. — *Frank M. Victoria*

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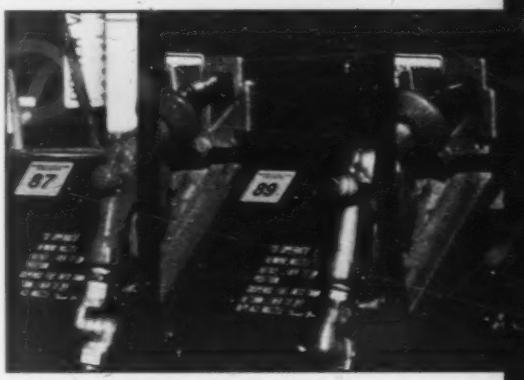
Looks like a good year for the industry—barring the unpredictables. **Page 32**



An "octane race" could be in the offing in the not too distant future. **Page 42**

Why Knox Oil is trying its hand at quick lube service for truckers. **Page 44**

Study Ranks Producers, Refiners and Marketers

A new and updated study by the American Petroleum Institute confirms, although the numbers vary somewhat, that the majors and the minors are clinging tightly to the positional roles they have held in recent years as oil producers, refiners and marketers of gasoline.

The concentration ratios show that eight companies accounted for roughly half of the industry's liquid oil reserves and production, refining capacity and throughput, and gasoline sales in 1986.

Although the API report didn't necessarily single them out in this fashion, the eight companies in alphabetical order would include Amoco, Arco, Chevron, Exxon, Mobil, Shell, Standard Oil and Texaco.

The API study is entitled "Market Shares and Individual Company Data for the U.S. Energy Markets: 1950-1986." It's dated October, 1987, but wasn't actually distributed until late November and early December. The chart below shows the concentration ratio for 1986.

Concentration Ratio

Segment	4 Cos.	8 Cos.	15 Cos.	20 Cos.	30 Cos.
Gasoline Sales	29.4%	49.5%	66.4%	70.4%	76.5%
Oil Production	26.6	44.6	56.5	59.8	63.3
Oil Reserves	29.7	47.1	57.2	59.3	61.1
Refinery Cap.	33.2	53.0	71.6	79.0	87.9
Refinery Runs	33.6	55.4	74.9	81.1	–

Following is also the breakout for the various segments of the industry—liquid oil production, proved reserves, refinery runs and refinery capacity, and gasoline marketing. To make the figures more meaningful, NPN added percentage calculations on 1986 production to proved reserves, and 1986 refinery runs to capacity, i.e., utilization of the facilities, and its own gasoline data as a basis of comparison with the Lundberg Report data that are used by the API researchers.

The production-to-reserves numbers show wide variations, from Shell's 7.9% to Phillips's 23.3%. Similarly, in refining operations, the percentage comparisons showed Chevron to be using only 72.4% of its capacity vis a vis Texaco's virtually nonstop performance. A factor to remember in the gasoline sales tables is that Lundberg used net taxable gallonage which it got from the states and other sources while NPN reports were based on the refinery gate sales of all of the companies involved.

The second tier of 12 refiners owning operable capacity in 1986 included Ashland 346,500 b/d, on down as follows: Coastal, Phillips, Citgo, Koch, Union Pacific, Kerr-McGee, Solomon, Total, MAPCO, American Petrofina and Diamond Shamrock.

12 Top Producers

	(Add 000 b/d) Production 1986	% of U.S.	(Add 000,000 bbl.) Proved Reserves 1986	% of U.S.	Production/ Reserves Ratio
Exxon	761	7.4%	2,627	7.5%	10.6%
Standard	727	7.1	2,406	6.9	11.0
Arco	659	6.4	2,728	7.8	8.8
Texaco	590	5.7	1,654	4.7	13.0
Shell	571	5.6	2,632	7.5	7.9
Chevron	547	5.3	1,880	5.4	10.6
Amoco	394	3.8	1,560	4.5	9.2
Mobil	342	3.3	1,014	2.9	12.3
Phillips	316	3.1	496	1.4	23.3
Marathon	189	1.8	629	1.8	11.0
Sun	171	1.7	649	1.9	9.6
Unocal	168	1.6	661	1.9	9.3

12 Top Refiners

(Add 000 b/d)

	Runs	% of U.S.	Capacity	% of U.S.	% Utilized
Chevron	1,335	10.4%	1,845	12.2%	72.4%
Exxon	1,080	8.4	1,144	7.6	94.4
Shell	975	7.6	1,046	6.9	93.2
Texaco	920	7.2	886	5.9	103.8
Amoco	855	6.7	967	6.4	88.4
Arco	665	5.2	673	4.5	98.8
Mobil	643	5.0	755	5.0	85.2
Standard	623	4.9	668	4.4	93.3
Marathon	442	3.5	513	3.4	86.2
Sun	416	3.3	443	2.9	93.9
Unocal	416	3.3	490	3.2	82.9
Conoco	358	2.8	393	2.6	91.1

12 Top Gasoline Marketers

(billions of gal.)

	Lundberg Reports 1986	% of Mkt.	NPN Analysis 1986	% of Mkt.	Rankings Lund.	NPN
Shell	8,685	7.9%	9,505	8.7%	1	1
Amoco	8,322	7.6	8,018	7.4	2	5
Exxon	7,806	7.1	8,201	7.5	3	4
Chevron	7,574	6.9	9,160	8.4	4	2
Mobil	7,132	6.5	7,328	6.7	5	6
Texaco	7,100	3.7	8,738	8.0	6	3
Unocal	4,069	3.4	3,986	3.7	7	10
Standard	3,747	3.0	5,476	5.0	8	7
Phillips	3,245	2.6	3,725	3.4	9	12
Arco	2,887	2.6	5,028	4.6	10	8
Southland	2,816	2.5	2,050	1.9	11	14
Sun	2,764	2.5	3,756	3.4	12	11

N.B. As noted above, Lundberg data are based on taxable gallonage figures obtained from the state agencies and other sources while NPN's reflect the total refinery gate sales posted by the companies in their annual reports and internal reports. NPN's numbers give 9th place to Marathon, which is not mentioned in Lundberg's top 12.

• TRENDS

Solid Statistics Badly Needed by Oil Industry

Some day the oil industry may get the verifiable data it needs to accurately calculate crude production and shipments around the world. Until it does there's not much hope the U.S. marketplaces will be spared the supply and price gigs of recent years.

American data aren't too bad, considering that most of the numbers come from a wide variety of sources, including the federal government, oil companies, associations, banks, economists and brokerage houses, trade and financial publications, agencies and a myriad of others, many of whom have special-interests ground into their data and their interpretations of trends.

As a matter of fact, a study by the American Petroleum Institute not too long ago showed that its data, the government's and several other leading sources were really not that far apart; that most of the differences could be accounted for by the collection methodology and the number of participants in any particular study. The API, of course, is the industry's prime source of statistics but its role is gradually being overshadowed by the Energy Information Administration. A significant difference is that API's data collection is voluntary and generally confidential in the raw while those of the federal government are mandatory for participants.

Overseas, however, it's another world entirely—a shambles in a way that make some of the reports sound as though they had come from the Tower of Babel in the wake of the heavenly intervention. For example, OPEC production estimates by six reliable authorities for the third quarter of 1987 varied almost 3-million b/d, from 16.6-million b/d on the low side to 19.2-million b/d on the high side. Translated into dollars, that gap is worth more than $50-million a day.

It's daft, said one international trader in an article in The Wall Street Journal recently: "The world's most important industry is flying blind. One result is that we don't know whether too much oil is being produced until the market breaks and prices fall."

That was what pretty well happened in late 1985 and early 1986. Because no one really knew how much crude was being thrown onto the market by Saudi Arabia and other members of the OPEC cartel, bulging inventories and overloaded supply lines simply caused the bubble to burst when it was least expected.

Time was when government agencies, oil companies and trade publications had reasonable access to fairly reliable country-by-country figures. But the nationalization programs of the 70s and the games that many of the OPEC members play with their statistics make honest figures hard to come by. Now, said the Journal, the need for good numbers is so great that some analysts have taken to counting ships leaving harbors to get some kind of an idea of how much oil is being shipped and where the cargos are bound.

Billions of dollars ride on such estimates. For example, at today's prices, crude or product cargoes can be worth $5-million to $15-million or so, depending on the size of the tanker and the ultimate destination.

Traders often grasp at the tiniest scraps of information in their daily jousts for the dollars to be won or lost in such places as the mercantile exchanges. For example, a strike by cooks on platforms in the North Sea suggested that production may suffer as a result. That was enough to salivate traders and escalate prices on the exchanges. Similarly, mines and gunfire in the Persian Gulf have caused price spikes and collapses with increasing frequency.

No one wants the statistics and the marketplaces to become so cut and dried that there'd be no fun anymore. But it sure would be helpful if the statistics could become authoritative enough to let reason and sanity prevail in the marketplaces, not some half-baked rumors about a shutdown or a slow down in the far-off Middle East or the cold North Sea.

—J. Richard Shaner

• MARKETPLACE AT A GLANCE

AVERAGE GASOLINE PRICES IN THE U.S. (per gal.)

OCTOBER	Gasoline (All types)	Leaded Regular	Unleaded Regular	Unleaded Premium
U.S. City Avg.	$0.988	$0.931	$0.976	$1.128
Regions:				
Northeast	1.018	0.945	0.988	1.145
North Central	0.992	0.952	0.987	1.125
South	0.984	0.909	0.972	1.121
West	0.968	0.931	0.959	1.119

Source: U.S. Dept. of Labor, Bureau of Labor Statistics.

STOCKS (Add 000 bbl.)

	11/27/87	11/28/86
Gasoline (total)	224,285	225,438
Gasoline (unleaded)*	134,138	123,297
Jet Kerosine	43,127	41,355
Distillates	124,648	149,147
Residual	47,476	46,460

**Included in gasoline total.*
Source: American Petroleum Institute.

Oil Patch (and U.S.) Still Groggy From 1986 Crude Price Collapse

The domino effect from the 1986 crude oil price collapse is still rippling across the economies of 10 major oil producing states, according to data from an updated American Petroleum Institute survey.

In fact, the survey of government and industry data for the first nine months of 1987 shows that overall U.S. economic indicators continue to reflect the pinch from the price downturn, API says. Bank failures, a key indicator, rose by more than two-thirds in the U.S. in the first nine months of 1987, according to the Federal Deposit Insurance Corp., with Texas and Oklahoma recording the highest number of such failures.

Particularly hard hit on the economic front are the oil patch states of Texas, Louisiana, Oklahoma and Arkansas, which have suffered 21.6% of the nation's business failures during the first eight months of 1987, as reported by Dun & Bradstreet, Inc. There were a total of 9,329 business failures in the region over the first eight months, an increase of 16.5% over the year-ago period.

"Business failures overall," says API, "according to Dun and Bradstreet continue to show the ripple effect in the first eight months of 1987 of stress created in the national economy from the downturn in the energy industry. The severity of the problem in the oil producing states is large enough to hurt non-producing states as well."

The hammer blow to domestic crude production and drilling activity caused by prices below $20 bbl. is also reflected in the latest statistics. Baker Hughes, Inc. reports that the monthly average of working rotary drilling rigs (onshore and offshore) is down 12.9% in the first nine months of 1987, compared to the period in 1986.

Photo By Paul Fusco Courtesy of BPAmerica, Inc.

Dropoffs in drilling activity and well completions add to oil patch woes.

API's own drilling well completion figures for the same period show a decline of 26%. Meanwhile, estimated domestic crude production is down by 459,000 b/d through the third quarter of 1987.

States surveyed include Alaska, California, Colorado, Kansas, Louisiana, New Mexico, North Dakota, Oklahoma, Texas and Wyoming. API counted business failures, bankruptcy filings, unemployment rates, rotary drilling rig counts, reported drilling well completions, crude oil production rates and bank failures.

State government revenues are hurting, too, in many of the states surveyed. A preliminary U.S. Census Bureau report of state tax revenue for the 12 months ending June 1987 showed declines in six of the 10 states surveyed. Alaska headed the list with a decline of 42%, followed by Wyoming (22%), Oklahoma (11%), Louisiana (9%), North Dakota (8%) and Texas (4%).

Although the unemployment rate has modified in many of the surveyed states, August rates, the most recent available, were still above the national unemployment rate of 5.8% in all states except California, Kansas and North Dakota.

The survey, "Energy and Economic Problems in the Oil Patch," is available from the American Petroleum Institute.

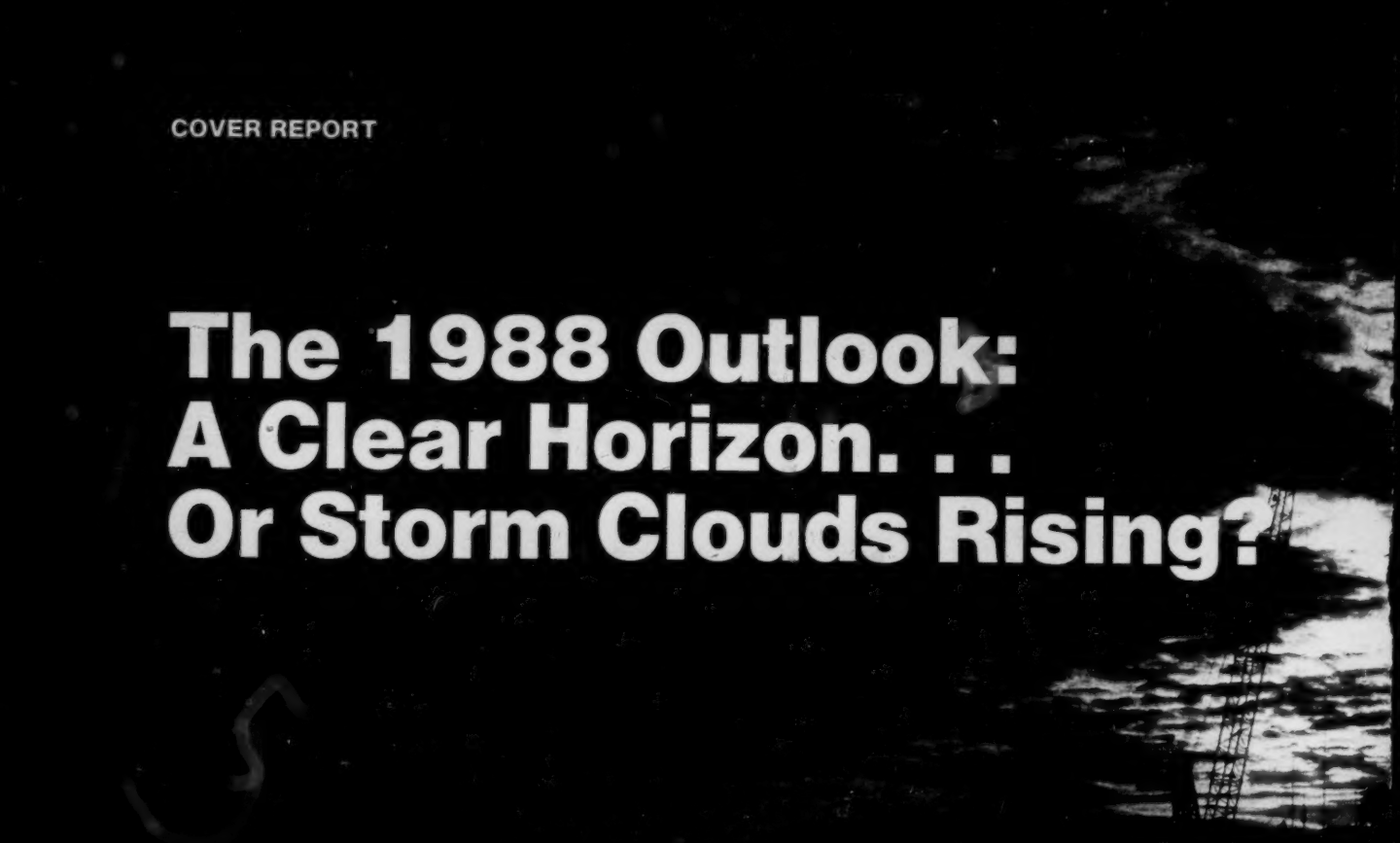
—By Donald M. Smith

Crude Production Rates—Top 10 Oil States

(Add 000)

	Estimated 1st nine months 1986 (b/d)	Estimated 1st nine months 1987 (b/d)	Annual All-Time High Production (b/d)
Alaska	1,858	1,938	1,865 (1986)
California	1,126	1,077	1,161 (1985)
Colorado	81	76	160 (1956)
Kansas	189	159	340 (1956)
Louisiana	1,383	1,316	2,562 (1971)
New Mexico	209	194	354 (1969)
North Dakota	127	116	144 (1984)
Oklahoma	416	361	761 (1927)
Texas	2,323	2,142	3,566 (1972)
Wyoming	338	302	439 (1970)
U.S.	8,744	8,285	9,637 (1970)

Source: The Department of Energy's Petroleum Supply Annual (1986 rates), The American Petroleum Institute Weekly Statistical Bulletin and the DOE Petroleum Supply Monthly (1987 rates), and *Petroleum Independent* magazine's *The Oil & Gas Producing Industry In Your State 1987-1988* (historical rates). Production rates expressed in barrels per day except as noted.



The 1988 Outlook: A Clear Horizon. . . Or Storm Clouds Rising?

Although such uncertainties as the Persian Gulf conflict, increased U.S. dependence on foreign crude, OPEC's capriciousness and a possible recession loom as a constant threat, the horizon of the year ahead looks clear and perhaps even bright.

Oil marketers—the tens of thousands of men and companies who slake the appetite of American industry and consumers with tens of billions of gallons of product—can pretty much expect the upcoming year to be ever so much like 1987.

In other words, continued improvement can be expected as the industry puts behind it the traumas of 1986, when international prices collapsed—as did just about everything else that mattered to domestic marketers and suppliers, independents and majors alike.

Here are some highlights of the year's expectations, as projected by federal government forecasters and others:

- Gasoline consumption will be about the same in 1988 as it was in 1987, which surprisingly

By J. Richard Shaner
Executive Editor

was about 2% better than 1986, a welcome increase.

• Distillate consumption will be up too, not much but nevertheless better than 1987. What little improvement there is, about 60,000 b d, will reflect increased industrial and diesel fuel consumption, not space-heating.

• Resid consumption will continue to erode although prices will remain steady.

• Gasoline prices will be up about 3c a gal. in 1988, but they'll still be pooping along well below 1985's $1.20 gal. level. Throughout most of the summer months, when consumption is highest, gasoline's average price for all grades and all services will coast along above $1 a gal. It attained that level in some places during third-quarter 1987 but slackened off by the end of the year.

• Distillate retails will rise too, notably in the first quarter of this year when they'll be worth about 85c a gal., minus taxes. They'll slump naturally during the summer months but may be able to hang in there at the beginning of the 1988-89 heating season at or near the 85c a gal. level.

• Margins will improve somewhat but since these vary from company to company and from region to region it's almost impossible to be precise about them. Perhaps the best way to size them up is to say that gasoline margins will be reasonable and distillates will be comfortable; which shouldn't make product marketers unhappy in the months to come.

• There's a caveat in this, of course, but the item of greatest cheer is that product marketing is scheduled to get its greatest financial infusion in history in 1988. The expectations are that suppliers and others will pour close to $4.9-billion dollars into new and improved facilities this year alone.

The projections for 1988 spending are significantly higher than those made last summer

Downstream investments could be highest ever

[*NPN*—July '87, p24]. At that time, capital expenditures were projected to range around $4.3-billion. Now the latest survey adds another $600-million to the forecast.

All-Time High

One of the exciting things about it all is that downstream's capital expenditures didn't break into the $4-billion a year category until 1987. Now the storyboard says they'll amount to $4.4-billion in 1987, $4.9-billion in 1988 (an all-time high) and $4.8-billion in 1989. These add up to $14.2-billion for the three-year period—as much as was spent on marketing and development in the preceding five or six years combined.

The $14.2-billion forecast also is roughly $1.4-billion higher than the one made last summer for the same three-year period. What this tacitly affirms and reconfirms is that competition out there is getting tougher and tougher and it's taking not only good product but also good-looking stores and pumps and sharp, high-class marketing to keep up with the Jones.

Many of these capital investment dollars also are going into underground storage tanks, where the problems seem to be unending even though the industry is trying to replace as rapidly as possible the potential leakers and aging pieces that might just become troublesome at any time.

The caveat in this rosy forecast on capital spending is the timing. McGraw-Hill's Data Research Inc., which has been making spring and fall surveys for nigh on to 40 years, says the questionnaires for the current survey were mailed out in September with a mid-October deadline, then delayed until early November.

Thus the questions were answered and the figures calculated before and during the period of the stock market upheaval in October and November. Some questionnaires were sent in late but there were few indications that any had been reevaluated in the light of the market crash. Consequently, there was no way to tell in this particular survey whether the shrinking of corporate stock values might dry up or defer some of the ambitious downstream spending plans.

A similar situation occurred in the fall 1986 survey. It was made just about the time that crude oil prices began their plunge to the pits, taking product prices and profits and exploration and production activities with them. So the survey wasn't too meaningful, other than an indicator of what might have been had the petroleum world not fallen apart in the early months of 1986.

Ups and Downs

Marketing is the only division of substance that's getting much help in 1988, according to the DRI study. Refining is slated to get a very modest increase, 2.9% this year and 3.1% next. What this means is that the industry apparently is going to sit tight on its current capacity, with little or no movement toward new or improved processing plants. The industry currently has only a moderate surplus which it is operating in the 80% to 85% range. There have been suggestions that perhaps some drawing-board planning should be in the works for refining facilities but the capital spending projections aren't very optimistic in this direction.

Exploration and production, which traditionally gets the lion's share of capital spending programs, is in for another tight year in 1988—perhaps the tightest yet in recent years. This is important because the U.S. drilling industry is barely alive anymore and U.S. production of crude oil is slumping badly. At any rate, the survey says exploration and production spending will be down to $18.7-billion in 1988. This would be 11.8% below 1987's $21.2-billion and 5.4% below 1986's traumatized reduction to $19.8-billion.

Next year, there's room for optimism, however. Planners indicate a 58.8% increase is in the wind for exploration and production in 1989, a forecast of $29.7-billion. Good news, indeed, for the beleaguered drilling industry if it's still alive and well 12 months from now.

The outlook for transportation expenditures is depressing. The cutbacks are expected to amount to 52.7% in 1987, 9.8% in 1988 and 12.0% in 1989. That peels transportation back to $1.4-billion in 1989, whereas it had been a happy $3.8-billion in 1986.

Transportation primarily involves crude and product pipelines, some marine facilities and some rolling stock over and above that used in marketing.

For the U.S. as a whole, oil's capital expenditures are scheduled to be $32.7-billion this year, down 5.7% from 1987, and $43.5-billion in 1989, up 33.0% over 1988.

Storm Clouds

The big question marks hanging over the industry like a multi-edged Sword of Damocles are those involving the American political scene, the Persian Gulf War and the Organization of Petroleum Exporting Countries.

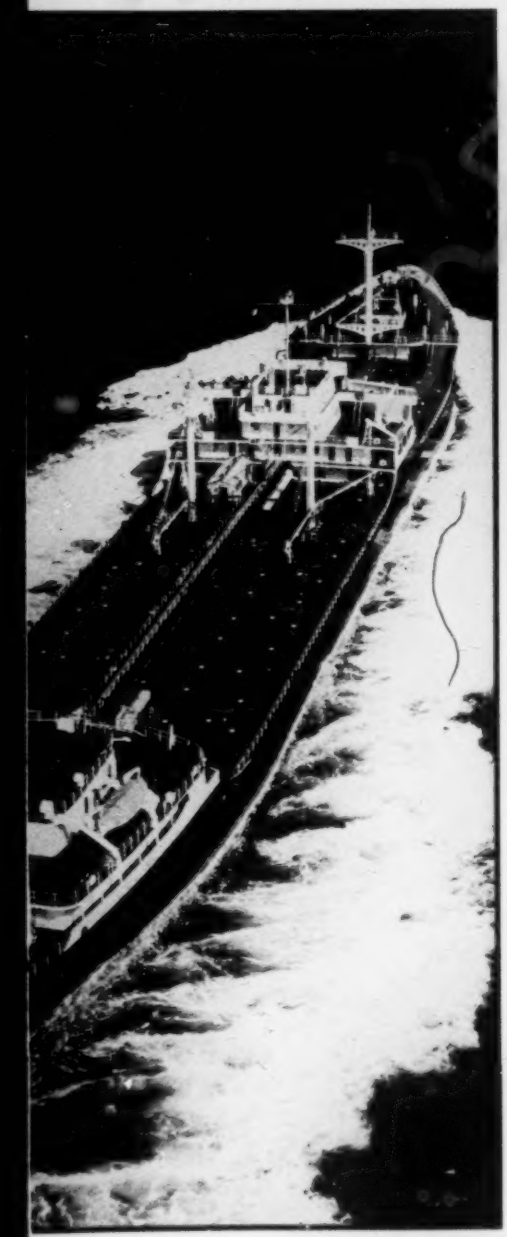
This is an election year and with a weakened administration floundering to restore itself in its final year, and a host of candidates in both the Republican and Democratic arenas shooting acerbic criticisms and political arrows into the air, there's bound to be considerable confusion as to who's on first and who's running the

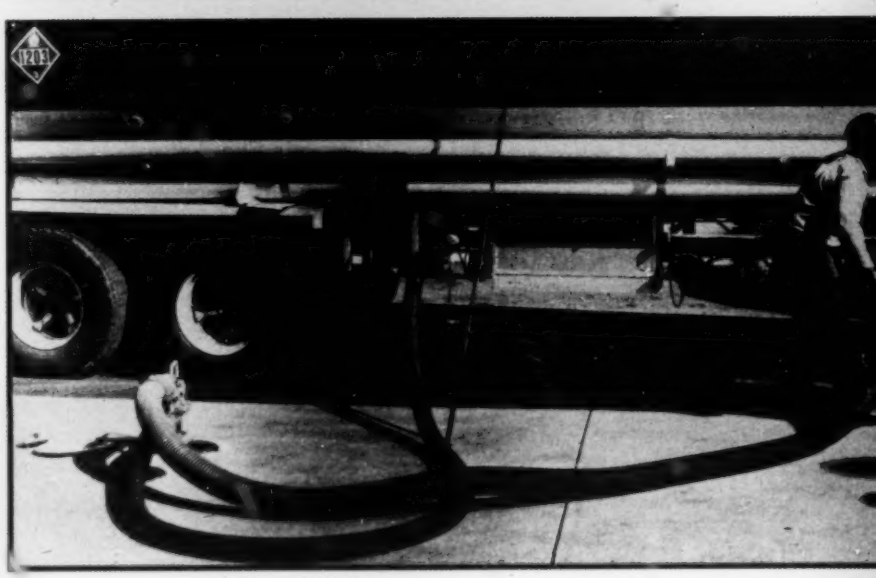
store. The lack of federal leadership also will impact heavily on regulatory agencies like the Environmental Protection Agency and Occupational Safety and Hazard Administration activities.

Normally, all these things would be taken in stride by the electorate but with the immensity of the federal deficit, and the shock waves generated by the October stock market tailspin, they're simply big black thunderheads that won't go away and loom ominously on the horizon.

One offshoot is that the steady increases in U.S. imports of crude and product are compounding the trade deficit problem. Commerce Department officials in Washington estimate that oil imports in 1987 will top $46-billion—almost $10-billion more than 1986. Thus oil is 11% of the nation's total import bill in 1987, and the outlook is for continued growth of this percentage factor through the year 2000.

The Persian Gulf War, which has been a negative backdrop for most of the past decade, blows hot and cold in its impact as Iran and Iraq maneuver for strong positions and each, with growing impunity, hit oil-tanker shipping in the Gulf with bombs, bullets and mines.





Hottest '88 issue: Stage II and air quality

Like a pervasive cancer, it's there, its dimensions are increasing and it has yet to respond to international pressures, medications and/or treatments of any kind. It could precipitate disastrous confrontations at any time, and it could go on for another year, just as it has over the past eight. The probability is that the latter will be the format for 1988, however.

The divisive attitude among OPEC's noisy membership continues to be the element that frustrates this group's desire to once again be dominant in the international scene. Among other things, Saudi Arabia appears to have lost its clout as the swing producer and Iraq has opened another pipeline to the Mediterranean. OPEC had another of its continuing "reconciliation" meetings scheduled for December but there was little expectancy that it would produce much more than table conversation.

Washington Scene

Congress undoubtedly will devote most

Federal Projections: Goodies Hard To Come By

BY THE YEARS

DEMAND (million b/d)	Projections 1988	% Chng. '88 v '87	1987	% Chng. '87 v '86	History 1986
Motor Gasoline	7.14	(0.3)	7.16	1.8	7.03
Leaded	1.59	(1.0)	1.76	(19.8)	2.18
Unleaded	5.55	2.8	5.40	11.3	4.85
% Unleaded	77.7%	2.3	75.4%	6.4	69.0%
Distillate Fuel Oil	3.02	2.0	2.96	1.7	2.91
Residual Fuel Oil	1.22	(2.4)	1.25	(12.0)	1.42
Total U.S. (a)	16.51	(0.2)	16.55	1.7	16.28
PRICES (per gal.)*					
Motor Gasoline**	$0.99	3.1	$0.96	3.2	$0.93
No. 2 Diesel Fuel	.98	7.7	.91	3.4	.88
No. 2 Heating Oil					
Wholesale	.53	3.8	.51	4.1	.49
Retail	.83	5.1	.79	(6.0)	.84
Residual***	.43	2.0	.42	23.5	.34

BY THE QUARTERS

DEMAND (million b/d)	1988 1Q	2Q	3Q	4Q	1987 1Q	2Q	3Q	4Q
Motor Gasoline	6.85	7.33	7.27	7.12	6.70	7.44	7.33	7.18
Leaded	1.60	1.70	1.60	1.48	1.73	1.89	1.71	1.71
Unleaded	5.26	5.63	5.67	5.64	4.97	5.55	5.62	5.47
% Unleaded	76.8%	76.8%	78.0%	79.2%	74.2%	74.6%	76.7%	76.2%
Distillate Fuel Oil	3.46	2.83	2.65	3.17	3.20	2.82	2.67	3.14
Residual Fuel Oil	1.46	1.17	1.09	1.14	1.38	1.16	1.23	1.23
Total U.S. (a)	16.81	16.24	16.26	16.71	16.34	16.43	16.65	16.76
PRICES (per gal.)*								
Motor Gasoline**	0.97	1.00	1.02	0.99	0.90	0.95	0.99	0.98
No. 2 Diesel Fuel	.95	.97	.99	.99	.89	.91	.91	.94
No. 2 Heating Oil								
Wholesale	.53	.53	.53	.54	.50	.51	.52	.53
Retail	.85	.81	.82	.85	.79	.78	.78	.83
Residual Fuel Oil***	.44	.42	.42	.43	.41	.43	.42	.44

(a) Includes all oils; * All prices include taxes except No. 2 heating oil; ** Average price for all grades and services; *** Average price for all grades of sulfur.

Source: Energy Information Administration, Short-Term Energy Forecast, dated October 1987, published in mid-November.

of its attention to politics this year but there's a laundry list of items that should provoke more heat than light, more "talk-talk" than decisions.

Among these are underground storage tanks and what EPA is really and truly going to do about them, including the suggestion that distillate tanks also should be made part of the program; hazardous substances and cleanups; Stage II and the ongoing dispute between oil and automotive industries over nozzle controls vis à vis on-board canisters; Reid vapor pressures; sulfur in diesel fuel; higher taxes for motor fuels and—more important—the acceptability of an imports tax on crude and products to help a beleaguered domestic drilling industry while at the same time doing something constructive about the gargantuan federal deficit that has become the hallmark of the Reagan Administration. The imports tax idea has been hot and cold but, given the right circumstances and the right time, it could be a 1988 happening that wouldn't upend American consumers.

Probably the hottest issue of 1988 will be Stage II and air quality regulations. EPA, last August, chose the on-board canister system over Stage II after much dilly-dallying. In late October, more than 40 representatives from oil, automotive, trade associations, environmental groups and agencies, equipment manufacturers and public interest groups argued the pros and cons at a two-day hearing.

A "final" ruling is expected early on in 1988. The assumption is that EPA will stick with its on-board canister decision. But again, EPA's track record on burning issues leaves much to be desired, so either the decision or the firmness of it may be delayed endlessly or watered down in the vain hope of pleasing all factions.

The Clean Air Act requirements are the big needle, however. Some 60 urban areas have indicated they cannot meet this January's federal deadline and with Stage II still inconclusively bouncing around out there, a need for local action is almost imperative.

An EPA proposal in late October calling for a delay of up to eight years in implementation of the act almost immediately generated a ground swell of protest from clean air activists and others, especially up in Congress and the Northeast. The probability is that some states and cities, including New Jersey and New York, will double-protect themselves against possible federal penalties by requiring emission-control nozzles in the interim, pending the arrival of a sufficient number of on-board canister vehicles to make the difference, probably around the year 2007.

Reserves Decline Again

U.S. proved reserves of crude oil declined 5.4% in 1986 primarily as a result of the collapse of prices at home and abroad that brought prompt curtailment to many drilling and production programs. Energy Information Administration says, however, that natural gas liquids (which are extracted from natural gas flows) were up 2.8% in 1986, giving the U.S. a total reserve of 35-billion bbl. of liquid petroleum. That's equal to about eight years of consumption based on current levels. Natural gas reserves were estimated at 191.6-trillion cf, down 0.9% from the previous year and continuing the decline of recent years.

1988 Margin Projections

GASOLINE	1986	1987	1988
Retail	10.0¢	6.5¢	8.0¢
Refiner	18.6	16.2	16.8
DISTILLATES			
Retail	31.3	28.2	30.1
Refiner	11.6	8.6	9.5

Source: Energy Information Administration, Short-Term Energy Outlook, October 1987, published November.

Gasoline Grades and Quality

The introduction of more mid-grade unleaded gasolines and the continuing decline of regular leaded grades will be relatively routine in 1988. Federal authorities estimate that leaded regular will be down to roughly 20% of volume by next December, and that this erosion will continue throughout 1989, perhaps at a slower pace. The day that leaded regular will be a hard-to-find specialty product is not far removed, however.

Informal industry estimates indicate that the percentages of unleaded regular, mid-

Will there be a mad dash for octane supremacy?

grades and premiums are too variable, company-by-company, and relatively too new to reach an industry consensus. However, a Texas engineering firm recently estimated that by 1992, the breakout will look like this: 87-regular, 50%; 89-mid-grade, 20%; and 92-premium, 30%.

This same firm sort of wondered out loud whether an octane numbers race may be in the making (See page 42). It noted that with the mid-grades coming on strong, many suppliers are moving firmly into the 92-93 octane area to meet the competition. Amoco, for one, was reported to be looking at a 94-octane for 1988 field-testing. This means they'll all be at the starting line in 1988 and with the pie continuing to shrink. It wouldn't take much to start them off in a mad dash for octane supremacy.

It will be recalled that in the 1960s, during another octane madcap era, many gasolines were sold as "100-octane-plus." But these were the octane numbers used in the research process. They were about 10 points higher than the other measurement procedure known as the motor method. In the early '80s, the federal government

Marketing Investments Hit All-Time Highs

		(Millions of dollars)	
MARKETING			
1989	(Planned)	$4,795	(−1.3)*
1988	(Planned)	$4,858	(+11.6)
1987	(Estimated)	$4,352	(+23.4)
1986	(Actual)	$3,526	(−3.8)
1985	(Actual)	$3,667	(+19.8)
TRANSPORTATION**			
1989	(Planned)	$1,432	(−12.0)
1988	(Planned)	$1,628	(−9.8)
1987	(Estimated)	$1,805	(−52.7)
1986	(Actual)	$3,815	(+0.5)
1985	(Actual)	$3,795	(+8.3)
EXPLORATION AND PRODUCTION			
1989	(Planned)	$29,702	(+58.8)
1988	(Planned)	$18,702	(−11.8)
1987	(Estimated)	$21,199	(+7.2)
1986	(Actual)	$19,775	(−40.2)
1985	(Actual)	$33,821	(+3.8)
REFINING			
1989	(Planned)	$2,206	(+3.1)
1988	(Planned)	$2,139	(+2.9)
1987	(Estimated)	$2,079	(−16.1)
1986	(Actual)	$2,478	(−26.6)
1985	(Actual)	$3,376	(+11.4)
OTHER***			
1989	(Planned)	$4,381	(−0.2)
1988	(Planned)	$4,390	(+2.8)
1987	(Estimated)	$4,269	(+4.8)
1986	(Actual)	$4,074	(−8.3)
1985	(Actual)	$4,442	(+4.2)
PETROCHEMICALS			
1989	(Planned)	X	X
1988	(Planned)	X	X
1987	(Estimated)	$1,012	(+17.6)
1986	(Actual)	$861	(−8.4)
1985	(Actual)	$940	(+48.7)
U.S. TOTAL			
1989	(Planned)	$43,528	(−33.0)
1988	(Planned)	$32,729	(−5.7)
1987	(Estimated)	$34,715	(+0.5)
1986	(Actual)	$34,529	(−29.9)
1985	(Actual)	$49,265	(+6.4)

* Figures in parentheses indicate percentage change from previous year.
** Does not include gas pipelines.
*** Includes coal mining by oil companies.
X Insufficient replies to make valid projections.

Source: Data Research Inc./McGraw-Hill Inc. Thirty-sixth survey of Preliminary Plans for New Plants and Equipment 1985-1989, data collected in September-October and published in late November, 1987.

resolved the differences by adding the research and motor method numbers together and dividing the result by two. This resulted in a lower octane number for pumps. Looking back, if the old research number was 101 and the motor method number was 89, then the same divide and conquer formula would have produced an octane rating of about 95. Which isn't very far removed from what the current number could be in another year or so, if an octane war gets underway in 1988 or 1989.

Federal Predictions

Getting back to the short-term energy forecast of the federal government's Energy Information Administration in late October, here are some of the highlights:

World Oil Prices: Crude oil, about $18.50 bbl., which is about where it was in mid-November. Attempts have been made to get the price up to $20 bbl. but with 2-million to 3-million b/d of excess crude available on the foreign marketplaces, there's not much likelihood that increases will happen without a shortening of supplies.

Product Prices: Gasoline prices, moderated last summer by a stubborn overhang of inventories, should nevertheless rise by 3¢ a gal. in 1988 despite almost no change in crude costs. For 1988, stock levels are assumed to return to normal as markets clear, leading to an opportunity for higher margins. Prices should peak in the summer months of 1988 at $1.02 a gal.

Heating oil prices for the current winter period contain both good and bad news for consumers. The bad news is that prices seem likely to increase as much as 9¢ a gal. over last winter. The good news is that more than half of the increase has already been felt. The average price increase should be only 6¢ a gal. for the rest of this winter and for the year as a whole, the average increase will be leveled off to about 4¢ a gal.

Product Demand: Gasoline demand will probably flatten out this year, winding up a fraction of a percent below last year. This despite the fact that automotive travel will be about 4% higher than 1987, which was about 5% above 1986. Smaller cars and the increasing efficiency in vehicle operation should offset the higher mileage. Distillate demand is expected to average about 3.0-million b/d in 1988, about 2% more than 1987.

Overall Outlook: Mostly sunny, with a small chance of precipitation. All in all, a lot like last year. NPN

Economist Says Stock Crash Won't Impact Heavily on Oil

DRI Energy Oil Service believes the recent stock market crash will not affect energy markets as much as it has the basic U.S. economy.

Issued in mid-November, the DRI statement says: "The crash will further weaken OPEC's ability to significantly raise oil prices because of expectations of lower world economic growth and oil consumption."

The statement added: "The drop in economic activity becomes muted as it is translated into energy prices. We have lowered our crude oil price forecast by 50¢ bbl. to $1 bbl. for 1988 and 1989. This translates into a reduction in our forecast of about 2.5¢ a gal. for gasoline and 1.5¢ a gal. for home heating oil. We still expect gasoline and heating oil price increases from 1987 to 1988 of about 5% for the next two years, slightly below our previous forecast."

In another non-related forecast, security analyst Joel Fischer, a vice president of Drexel, Burnham and Lambert, Inc., New York, concurs in the concept that while capital budgeting decisions will be revised by many businesses, the net impact on oil's will be "of quite limited proportions."

The industry, he said, has been dealing with shrinking markets since 1979 and with shattered expectations and deflation in its price structure since 1981.

But Fischer also makes the point that the "restructuring of the U.S. and the world oil industry" isn't yet over. "Over the coming 10 years," he said, "we will probably witness the disappearance of more of our remaining medium-sized and regional oil companies as a correlate of the drive for control of outlets if not for control over reserves."

Given the limited prospects for discovery of truly great reserves at non-OPEC frontiers, he said, "purchase of reserves may well appear more attractive than exploration to the industry giants."

American Petroleum Institute president Charles J. DiBona told an international energy conference in London in late October that "currently, U.S. oil imports are running about 44% of the nation's total and we are rapidly approaching the 48% all-time high reached in 1977."

About the same time, Texaco Inc. chairman Alfred C. DeCrane, Jr., told a Texas meeting that a "new oil crisis" is in the making that could endanger "not only our economic security but our national security as well." He asserted: "Clearly, America can never be totally independent of foreign petroleum supplies. But the more dependent we become on others for our energy, the more we lose our ability to make independent decisions in foreign policy and other areas."

On the other hand, Mobil Oil chairman Allen Murray, saying he was "not an alarmist," told the recent Petroleum Marketers Assn. of America convention in Dallas that "in the year 2000 all of the energy resources we need will be available at reasonable prices." He also questioned the validity of the concept that a 50% import level created vulnerability problems for the American people.

Chevron Corp., in its annual update of its world energy outlook, said OPEC "has sufficient reserves to control supply and, therefore, price. . . from now until the year 2000." Chevron said that a price range of $15 bbl. to $30 bbl. would be all that was needed for OPEC to retain control.

One of the major questions facing the oil industry today is whether the traumatic events of the past 14 years have changed the pattern of relatively stable prices, the update said, citing these points as "critical factors":

- For the first time in the industry's 125-year history, the cost of discovering a barrel of oil is higher than the cost of a barrel currently being consumed. Moreover, while already discovered oil reserves are for the most part producible at current prices, exploration for new, frontier fields will require higher prices.
- The increasing concentration of crude oil reserves in relatively few areas—most notably the volatile Persian Gulf—will make it easier for countries in those areas to exert political control over prices.